

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 35-39, 43-44, 50-56, 58-59, 61-71 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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3. Claim 35 is indefinite, are the “molded elements” of claim 35 and claim 34 one and the same? What does “at least in sections” mean? What does “form fitted fashion” mean? Are the tongue and groove and the bevel and groove one and the same?

4. Claim 36 should be reworded in Markush format.

5. Claim 38 is the hollow cylinder and the hollow element one and the same?

6. Claim 39 is confusing. Does the claim serve to further limit the pore burner? There is no antecedent support for “ the gas or air or gas/air mixture stream”.

7. Claims 43 and 44, see rejection to claim 34 supra.

8. Claim 50, see rejection to claim 35 supra.

9. Claim 51, there is no antecedent support for “the region”. What is meant by equal to material density of at least one of these molded element?

10. Claim 52, there is no support for “the surface”.

11. Claim 53, there is no support for “the base surface”.

Claim 54 is indefinite, the multiple recitations of “and/or” renders the claim indefinite for failing to particularly set forth the elements of the invention. You should reject these types of claims and for the purpose of examination, you should identify to applicant as to how you are interpreting the scope of the claim (i.e. as a combination or an alternative).

12. Claim 55, what structure of the burner is flat?

13. Claim 56, recitation of “at least in an area” renders the claim indefinite.

14. Claim 58 there is no nexus between the wire mesh and the structure of the burner.

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15. Claim 59, there is no support for “the process metal element”.
16. Claims 61 and 62 it is not clear what is meant by “including one to five” and “includes one,two,or three”.
17. Claim 63, it is not clear how the winding relates to the mesh. (Axially or radially respect to what structure or reference frame)
18. Claims 64 and 65, what is meant by “accessible”? Do you mean “attainable”?
19. Claim 67 should replace “and” with “or”.
20. Claims 68 and 69, there is no structural nexus between the burner, ignition device and he feed tube. With respect to the language of “and/or” see rejection to claim 34.
21. Claim 70, the language of “and/or” see rejection to claim 34
- 22.** Claim 71, there is no support for “the region” and “the hollow element” and “the corresponding inside” and “the smallest spacing”.

***Claim Rejections - 35 USC § 102***

23. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

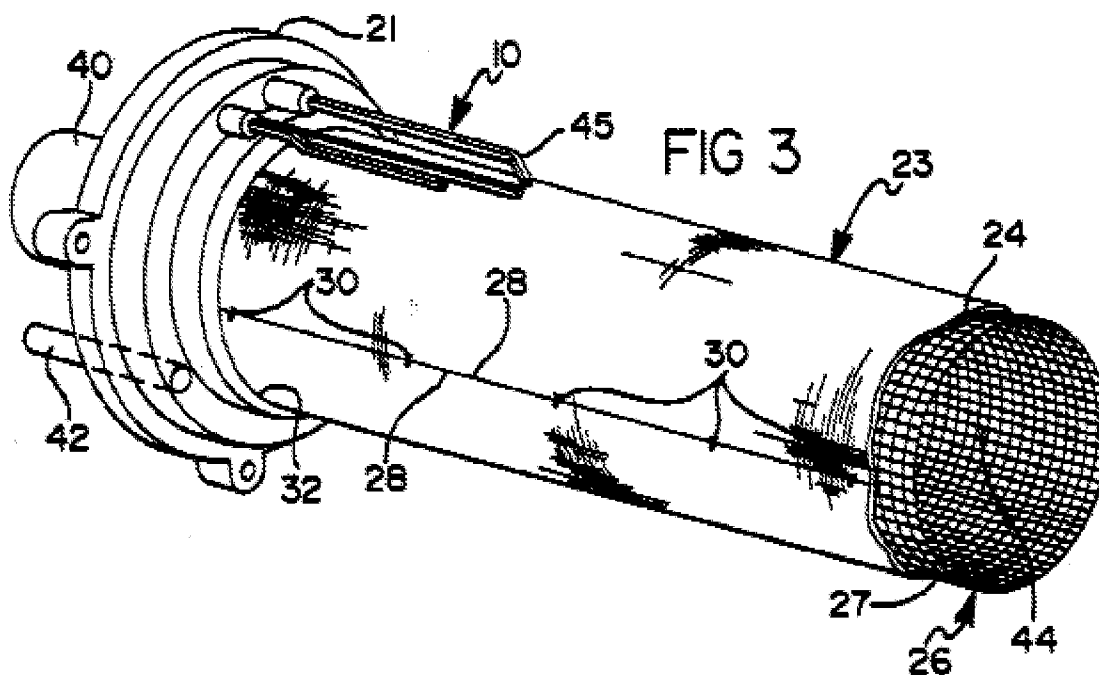
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

24. Claims 34, 36-38, 52-63, and 66-75 are rejected under 35 U.S.C. 102(b) as being anticipated by Ahmady [5165887].
25. Ahmady discloses:

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Pore burner (10) with a housing having at least one inlet or outlet for gas, air, and/or exhaust where the housing has at least one dimensionally-stable porous molded element comprising at least one of sintered metal powder and pressed metal wire mesh (27), the molded element having at least one of pore spaces in which reaction zones are present for flame development or a surface in which reaction zones are present for flame development to form a flat burner, wherein the molded element comprises at least one integral mounting element and/or fastening element through which at least one inlet of the dimensionally-stable molded element can be securely connected to at least one inlet tube and/or burner tube for air and/or gas, without requiring additional fastening elements (see figure 3).



26. Claim 36, the examiner is interpreting the mounting and/or fastening element as flange (21) (see figure 3).

27. Claims 37 and 38, Ahmady discloses a molded element comprises a hollow cylindrical element (see figure 3).

28. Claim 52, see irregularities in figure 3 at (30). These irregularities are for weaving thread through in order to connect the wire mesh and the outer cylinder.

29. Claim 53, Ahmady discloses a pore burner having irregularity that encompasses at least one indentation and/or elevation deviates from the base surface of the molded element (see figure 3). The irregularities are spaced axially away from the base.

30. Claim 54, Ahmady discloses a pore burner (10) of Claim 34, wherein a wall thickness of the molded element varies. The wall is comprised of the wire mesh and the outer cylinder, and it is seen that the thickness varies in figure 3.

31. Claim 55, Ahmady discloses a pore burner (10) of Claim 34, wherein said pore burner is a flat flame burner (see figure 2, col 5, line 27-36).

32. Claims 56 and 57 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ahmady, further in view of the NEXTEL 312 web publication. The claim is disclosed by Ahmady as having a material known as NEXTEL 312, wherein the density is  $2.7 \text{ g/cm}^3$ , which is approximately  $2.8 \text{ g/cm}^3$ , which is within the given range. If not inherent, this material has a compression density in the claimed range. Although it is taught by Ahmady that the material is NEXTEL 312, the result of having a compression density is predictable in that under operation, this material can withstand a compression force in the given range. A person

of ordinary skill in the art would have recognized this material as an option, and would have predicted the success in the function of use.

## **Fiber Properties:**

**Composition – Alumina-Boria-Silica**

**Density (non-porous) –  
0.0975 lb/in<sup>3</sup> (2.70 gm/cc)**

33. Claim 58, the examiner is broadly interpreting the wire mesh as being subjected to a given compressive force.

34. Claim 59, Ahmady is silent to the wire diameter of the metal element. However, the mesh size is designed to be greater than the pore size, and therefor, based on the pore size, the diameter of the wire mesh is, inherently, within the range as claimed. See column column 6, lines 54-64.

35. Claim 60, see the explanation for claim 59 supra.

36. Claim 61, the pore burner (10) comprises a compressed wire mesh including one to five metal wires (see figure 3).

37. For claim 62, see the explanation for claim 61.

38. Claim 63, Ahmady discloses a pore burner (10) of Claim 34, wherein the metal wire mesh is wound axially or radially before pressing (col 5, line 26-30).

39. Claim 66, see column 5, lines 65-67 of Ahmady for the metal powder and/or metal wire mesh including at least one metal and/or metal alloy that forms an oxide layer.

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40. Claim 67, Ahmady discloses a pore burner (10) of Claim 66, wherein said metal alloy contains at least one of chromium and aluminum (col 5, line 65-67).

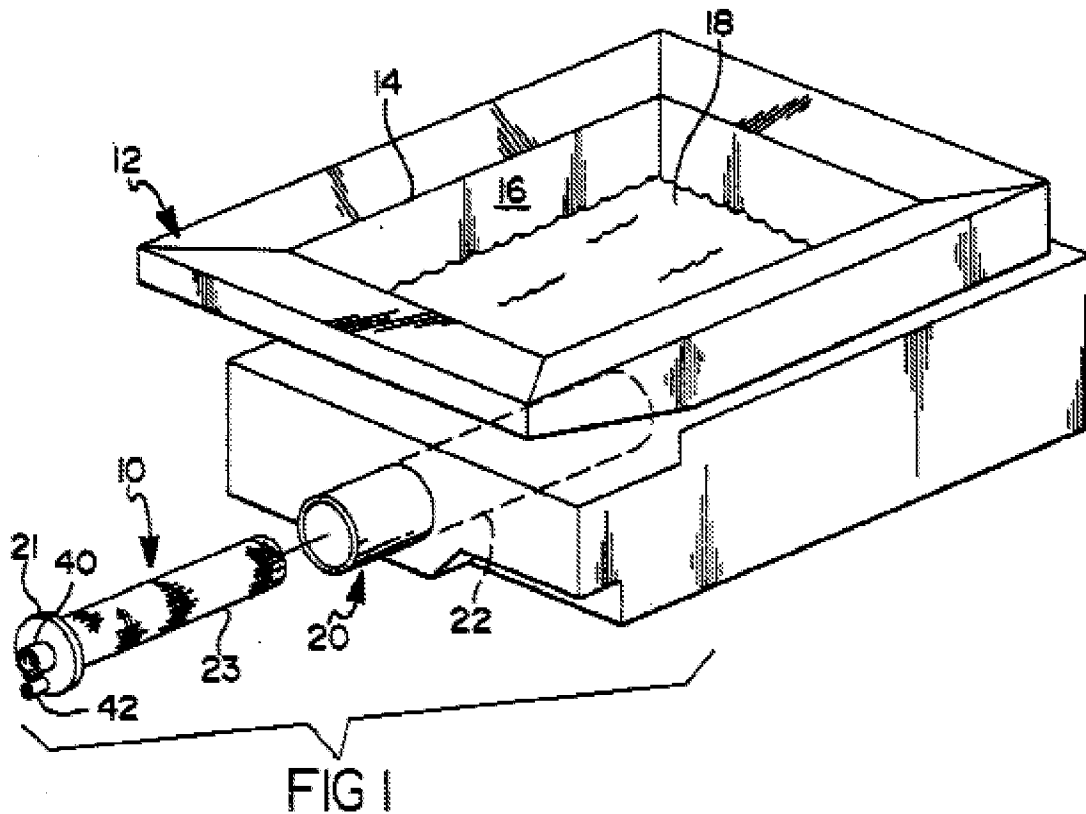
41. Claim 68, Ahmady discloses a pore burner system comprising a pore burner, an ignition device (45), and at least one feed tube for air and/or gas (40), which can be connected to an inlet of the pore burner and/or the ignition device (see figure 3).

42. Claim 69, Ahmady discloses at least one inlet (40) of the dimensionally-stable molded element is connected to at least one feed tube and/or burner tube for air and/or gas via a mounting and/or fastening element (21) (see figure 3).

43. Claim 70, Ahmady discloses a pore burner system of Claim 69, wherein said mounting and/or fastening element is a flange (21) and/or a thread (see figure 3).

44. Claim 71, Ahmady discloses a pore burner system of Claim 68, wherein the ignition device (45) is arranged in the region of the outside of the hollow element (23) at the corresponding inside of which the distribution device has the smallest spacing (see figure 3, col 5, line 54-57).

45. Claim 72 and 73, Ahmady discloses a cooking appliance (16) comprising at least one pore burner (10) or pore burner system of Claim 34 and 68 respectively (see figure 3 and 5).



46. Claim 74 and 75, Ahmady discloses a Heating appliance (16) comprising at least one pore burner (10) or pore burner system of Claim 34 and 68 respectively (see figure 3 and 5). The examiner is broadly interpreting the fat fryer (16) as being a cooking a appliance and a heating appliance.

***Claim Rejections - 35 USC § 103***

47. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

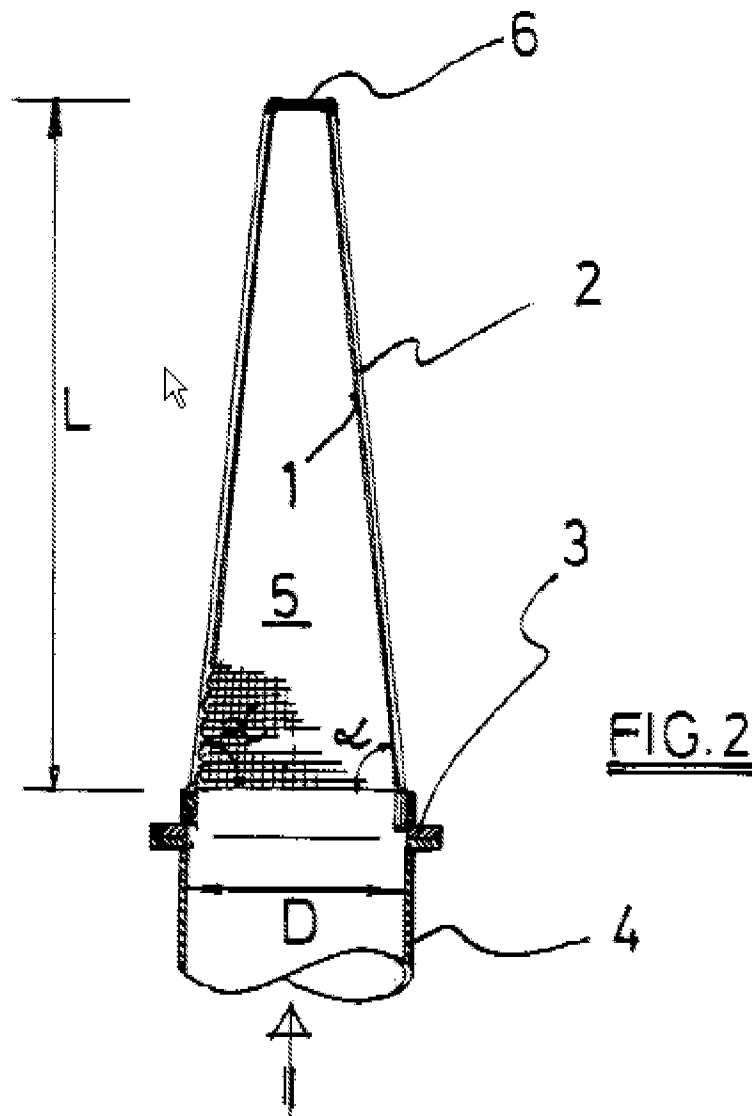


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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

48. Claims 35, and 64-65 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmady [5165887], further in view of Dewaegheneire [6065963].

49. Ahmady discloses a pore burner (10) comprising two molded elements (1, 7) that is fitted by a form of wrapping and threaded connection. Dewaegheneire teaches a similar device wherein the burner is coupled to a gas supply via a welded joint, that when the segments are connected, they are formed in a tongue and groove fashion (see fig 2). In view of Dewaegheneire, the device contains common means of connecting two sections of the burner. The claim would've been obvious because a particular known technique was recognized as part of the ordinary capabilities of one skilled in the art for connecting cooperating elements.



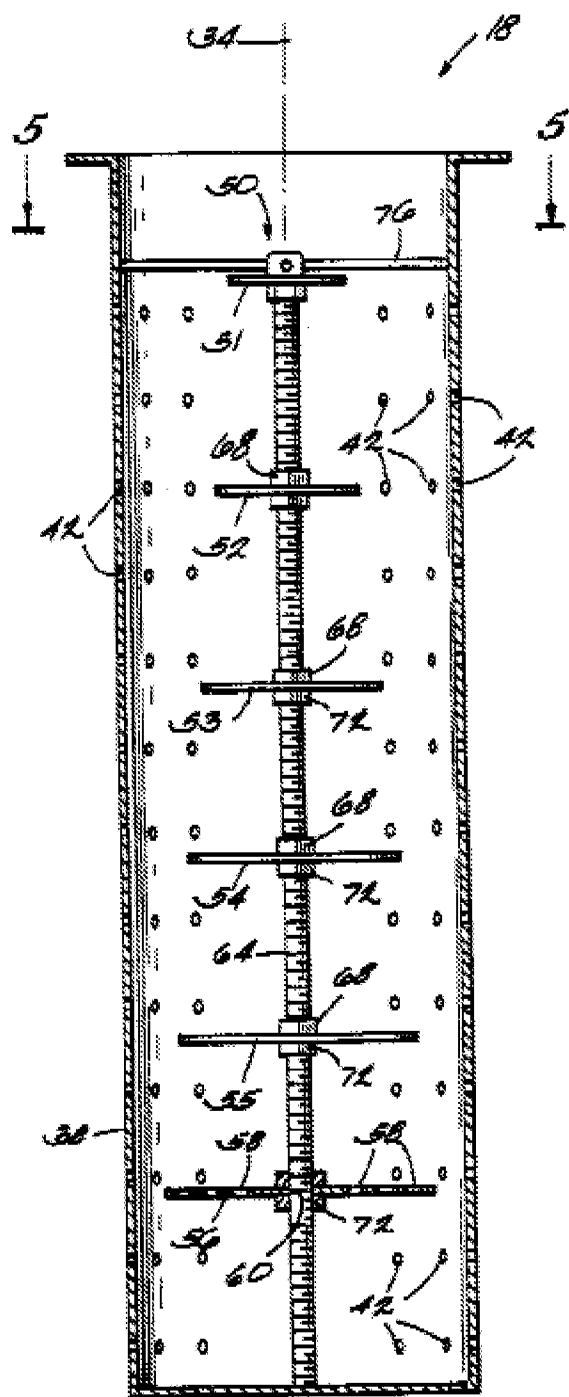
50. With respect to claim 64 and 65, Ahmady discloses a pore burner whose surface can withstand temperatures of up to 3200°F. Although this does not imply an accessible surface load, Dewaegheneire teaches a similar device wherein the heat flux ranges from 2700kW/m<sup>2</sup>-3100kW/m<sup>2</sup> (col 3, line 3-13), which falls between the range claimed by the applicant. The applicant discloses that the heat resistant steel is responsible for the surface load. In view of Dewaegheneire, the material used is made

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of NIT fibers and the surface load falls within the desired range showing that multiple materials possess the same characteristics. The teachings of using the NIT fibers are obvious since this is a material that has a desirable range of accessibility. The result of an accessible surface load being within  $200 \text{ W/cm}^2$ - $300 \text{ W/cm}^2$  is predictable when the NIT fibers are used, and a person of ordinary skill in the art would have recognized this material as falling within the accessible range.

51. Claims 39-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmady ['887], further in view of Morrison [5516278].

52. Ahmady discloses a pore burner that distributes the gas/air mixture through ports (40) to the interior (44). The distribution device however is not a plate, and it is not disclosed that there is a non-homogeneous pressure distribution. Morrison teaches a similar device that has a pressure distribution device (50) that includes a plurality of plates (see fig 4). Morrison also teaches that the plates substantially distribute pressure equally over the side wall (38), where substantially equal implies approximately equal so it is understood that the pressure distribution is non-homogeneous (col 2, line 46-53). It is also seen that the plates are distributed in sections of the burner tube (see figure 4). In view of Morrison, the plates distributed in sections provide the same pressure distribution that is claimed. Morrison teaches a pore burner with plates in order to distribute the pressure in a non-homogeneous fashion in an inside wall. The result of spacing the plates in at least sections of the pore burner is a non-homogeneous pressure distribution, and the results are predictable and obvious to a person of ordinary capabilities in the art.



*Fig. 4*

53. With respect to claim 40, Ahmady discloses a pressure distribution that is located within the burner tube. Morrison teaches a similar device wherein the pressure distribution is in the area of the distribution device (see fig 4). Perforated plates with different diameters distribute the pressure non-homogeneously. Morrison teaches that the distribution device is a plate located in the area of the pressure distribution. One skilled in the art would find that the pressure is distributed in this area in order to provide a flame on the walls of the tube. The result of the plate in the area of pressure distribution is obvious and predictable in that the pressure needs to be non-homogeneous in order to house a flame. In view of Morrison, the claim is obvious because all the elements are present and the results are predictable.

54. With respect to claim 41 and 47, Ahmady discloses a burner wherein the distribution device is a port (40) instead of a plate. Morrison teaches a similar device wherein the distribution device is a series of plates (51-56) (see figure 4). The plates are preferably circular disks extending perpendicular to the axis (34). In view of Morrison, the plates are similar to the baffle plates in that they serve the purpose of distributing the pressure throughout the burner. The results of a pressure distribution caused by the plates in the burner tube are known to allow a flame to burn in the tube so that the flame does not burn out. The claim is obvious because a person skilled in the art can see the predictable result of housing a flame due to the pressure distribution device being a plate, or a series thereof.

55. With respect to claim 42, Ahmady discloses a distribution device that is a port (40) and not a plate as claimed. Although it is not disclosed what the ports are made of,

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Morrison teaches a device wherein the plates are understood to withstand great temperatures, and would therefore be made of similar materials as claimed. Morrison also teaches a cone that is a distribution device, but is expensive to manufacture, which means the disc are a less expensive alternative. This also implies that the material is similar to that claimed. In view of Morrison, the claim is obvious because the burner housing is metallic and the housing is used for flame generation, and must function in high temperatures. The result of having a metallic distribution device is that the burner will be able to withstand high temperatures so that damage will not occur and a flame will last in the burner tube. The material is then predictable since it is known that a metallic material can survive high temperatures, and is also obvious.

56. With respect to claim 43, Ahmady discloses the distribution device (40) as being present in the end section of the burner device and not in a burner tube as a series of plates. Morrison teaches a similar device wherein the distribution device is a series of plates, which are distributed in sections of the hollow cylinder (see figure 4, col 2, line 65-67). In using a series of plates as the distribution device, a pressure distribution is achieved in order to house a flame. The results of having plates in the burner tube in sections allows the pressure to be distributed throughout the inner wall of the tube and would have the predictable result of housing a flame for an operable amount of time. The claim is obvious because a person of ordinary capabilities would have seen these options and would have been able to predict the results.

57. With respect to claim 44, Ahmady lacks a distribution device that is fastened in sections in the burner area, but does disclose a distribution device wherein the device is

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fastened in only one section of the burner element. Morrison teaches a similar device wherein the plates are fastened to a bore (60) (see figure 4, col 2, line 57-58). It is seen through the figure that the plates are fastened in sections in the tube. In view of Morrison, the bore (60) fastens the plates in sections in the tube. The claim would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of one skilled in the art.

58. With respect to claim 45, Ahmady discloses a distribution device that has a distribution device that is attached to the end of the base (21) and not directly to the burner tube. Morrison teaches a similar device wherein the disks are in the hollow cylinder but are not attached directly to the tube, but are positioned in sections on a bore (60). This is seen in figure 4, where the disks (51-56) are spaced along the bore in sections. In view of Morrison, a means of fastening the plates is achieved by a bore (60) which shows that the plates have no direct connection to the hollow cylinder. The claim would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of one skilled in the art.

59. With respect to claim 46, Ahmady discloses a burner wherein the distribution device is a port that is not necessarily positioned relative to a center axis. Morrison however teaches a device wherein the plates are positioned relative to the center axis of the hollow cylinder, spatially positioned on the bore. The slope, as can be seen is close to zero, but this does not imply that there is a non-existing slope (see figure 4). In view of Morrison, the slope is not necessary for a pressure distribution, but the plates are not taught as to being positioned in a manner where there is no incline. The claim

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would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of one skilled in the art.

60. With respect to claim 48, Ahmady discloses a device wherein the burner is a hollow tube, as can be seen in figure 3. Morrison teaches a device that is also a hollow cylinder as can be seen in figure 4. In view of Morrison, the hollow tube is a conventional shape and serves the purpose intended. All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

61. With respect to claim 49, Ahmady discloses a device wherein the burner has a distribution device that is a port (40) wherein its cross sectional area is in the direction of flow and is more than 50% of the surface area. Morrison teaches a device wherein the plates, which are used for deflection, also are positioned so that more than 50% of the cross sectional area is facing the flow and is greater than the cross sectional area of the tube (see fig 4, col 2, line 46-50). In view of Morrison, the plates are faced so that a maximum cross sectional area of the plates are in a direction of flow and is more than 50% of the cross sectional area of the hollow element, and is understood that this is possible due to the perpendicular positioning about the bore (60) axis (34). All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their

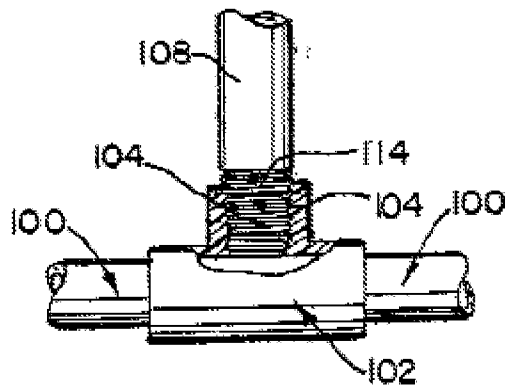


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respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

62. Claims 50 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmady, further in view of Costa [20030044249].

63. Ahmady discloses a burner device wherein a the outer tube (23) is made of ceramic/metallic fiber cloth and is adjacent to a wire mesh (26), which are both affixed to a base which is made of a ceramic material (see fig 3, col 5, line 37-42). The two materials are similar in nature and are understood to have equivalent densities. Costa teaches a device wherein the two adjacent material densities of two adjacent molded elements are equal and the connection site of the elements has the same density as the molded elements. In view of Costa, tubes having the same density and the connection being of the same density yields the predictable result that under function circumstances, the device will not compromise in strength under given loads. The claim is obvious because a person of ordinary capability would have recognized the importance of having materials with similar densities so that the result would be a device that does not suffer fatigue under operable conditions.



**FIG. 2**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Avinash Savani whose telephone number is 571-270-3762. The examiner can normally be reached on Monday- Friday, alternate Fridays off, 7:30-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Isabella can be reached on 571-272-4749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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